

In the Claims

Please amend the claims as follows:

1           1. (Amended) A method of branding a gemstone diamond  
2 comprising:  
3           directing a focused ion beam at the gemstone diamond to  
4 be branded and  
5           manipulating [controlling] the beam such that the beam  
6 impacts the surface of the gemstone diamond at a number of  
7 specified locations for a specified amount of time at each  
8 location to graphitize a portion of the gemstone diamond in  
9 the shape of a desired design.

1           2. (Amended) The method of claim 1 wherein the focused  
2 ion beam is manipulated [controlled] by a computer.

1           5. (Amended) The method of claim 3 wherein the design is  
2 between about 7 nanometers and 250 micrometers [7 nanometers  
3 and] wide at its widest point.

1           7. (Amended) The method of claim 1 further comprising  
2 removing the graphitized portions of the gemstone diamond so  
3 that the design is carved into the surface of the gemstone  
4 diamond.

1           8.    (Amended) The method of claim 1 wherein the gemstone  
2 diamond is coated with a conductive layer.

1           10. (Amended) The method of claim 1 wherein the gemstone  
2 diamond is exposed to a charge neutralizer.

1           11. (Amended) A method of branding a gemstone diamond  
2 comprising the steps of:

3           securing the gemstone diamond onto a holder capable of  
4 being used in a coordinate transfer system;

5           using the coordinate transfer system to create mapping  
6 data which represents the distances between the location on  
7 the gemstone diamond which will be branded and certain set  
8 reference points on the holder;

9           using the mapping data to manipulate [control] a focused  
10 ion beam machine such that it produces a focused ion beam  
11 which impacts the gemstone diamond at a desired location for a  
12 desired length of time to brand to design onto the gemstone  
13 diamond.

1           12. (Amended) The method of claim 11 further comprising  
2 generating design data which represents the design to be  
3 branded onto the gemstone diamond; and using the design data

1 in conjunction with the mapping data to manipulate [control]  
2 the focused ion beam.

1 13. (Amended) The method of claim 11 further comprising  
2 the step of coating the gemstone diamond with a layer of  
3 conductive coating.

1 18. (Amended) The method of claim 11 wherein the holder  
2 is capable of holding more than one gemstone diamond at a  
3 time.

1 22. (Amended) The method of claim 21 wherein the mapping  
2 data is determined for more than one gemstone diamond.

1 24. (Amended) The method of claim 23 wherein the ion  
2 beam is manipulated [controlled] to impact the gemstone  
3 diamond such that the gemstone diamond is branded wherein each  
4 impacted area corresponds to one pixel of the design.

1 25. (Amended) The method of claim 12 further comprises  
2 the step of relating a local coordinate system associated with  
3 the design to be branded on the gemstone diamond to a global  
4 coordinate system associated with the mapping data.

1           26. (Amended) The method of claim 11 wherein the focused  
2           ion beam brands the gemstone diamond by converting a portion  
3           of the gemstone diamond into graphite.

1           28. (Amended) The method of claim 27 wherein the  
2           graphite is removed by exposing the branded gemstone diamond  
3           to potassium nitrate.

1           29. (Amended) The method of claim 27 wherein the  
2           graphite is removed by exposing the branded gemstone diamond  
3           to plasma.

1           30. (Amended) The method of claim 11 wherein a voltage  
2           applied to produce the ion beam is manipulated [controlled]  
3           such that the computer is able to vary how far the ion beam  
4           penetrates the surface of the gemstone diamond and how deeply  
5           the gemstone diamond is branded.

1           31. (Amended) An apparatus for branding a gemstone  
2           diamond comprising:

3           a coordinate transfer system controlled by a computer;  
4           a focused ion beam machine manipulated [controlled] by  
5           the computer;

6           one or more computer programs, performed by the computer

1 attached to the coordinate transfer system, for generating  
2 mapping data which represent the distances between the  
3 location on the gemstone diamond which will be branded and  
4 certain set reference points on the holder;

5 one or more computer programs, performed by the computer  
6 for using the mapping data to manipulate [control] the focused  
7 ion beam machine such that it produces a focused ion beam  
8 which impacts a surface of the gemstone diamond at one or more  
9 desired locations for a predetermined length of time to brand  
10 the design onto the gemstone diamond.

1 32. (Amended) The apparatus of claim 31 further  
2 comprising one or more computer programs, performed by the  
3 computer, for generating design data which represent the  
4 design to be branded onto the gemstone diamond and using the  
5 design data in conjunction with the mapping data to manipulate  
6 [control] the focused ion beam machine.

1 33. (Amended) The apparatus of claim 31 further  
2 comprising a second computer connected to the first computer  
3 wherein the first computer performs one or more computer  
4 programs for creating mapping data which represent the  
5 distances between the location on the gemstone diamond which  
6 will be branded and certain set reference points on the

1 holder; and the second computer performs one or more computer  
2 programs for using the mapping data to manipulate [control]  
3 the focused ion beam machine, such that it produces a focused  
4 ion beam which impacts the gemstone diamond at a desired  
5 location for a desired length of time to brand the design onto  
6 the gemstone diamond.

1 34. (Amended) The apparatus of claim 33 further  
2 comprising a third computer connected to the first computer,  
3 wherein the third computer performs one or more computer  
4 programs for generating design data which represents the  
5 design to branded onto the gemstone diamond.

#### REMARKS

##### I. INTRODUCTION

In response to the Written Opinion of April 27, 2001, claims 1, 2, 7, 8, 10-13, 18, 22, 24-26, 28-34 have been amended. Claim 5 was amended to correct a typographical error. Claims 1-36 are pending in the application.

Applicants respectfully submit that claims 1-36 meet the criteria for Novelty under PCT article 33(2) and Inventive Step under PCT article 33(3).